UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/714,980	11/18/2003	Jonathan S. Stamler	28195-506 DIV	3662

20306 7590 04/16/2007

MCDONNELL BOEHNEN HULBERT & BERGHOFF LLP
300 S. WACKER DRIVE
32ND FLOOR
CHICAGO, IL 60606

EXAMINER	
KWON, BRIAN YONG S	
ART UNIT	**PAPER NUMBER**
1614	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	04/16/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	10/714,980	STAMLER, JONATHAN S.	
	Examiner	Art Unit	
	Brian S. Kwon	1614	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *17 January 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-8 and 13-16* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-8 and 13-16* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *18 November 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Status of Application

1. By Amendment filed January 17, 2007, claims 1-2 and 8 have been amended and claims 13-16 have been added. Claims 1-8 and 13-16are currently pending for prosecution on the merits of the instant application.

2. Applicant's argument, filed January 17, 2007, have been fully considered but they are not deemed to be persuasive. Rejections and/or objections not reiterated from previous office actions are hereby withdrawn. The following rejections and/or objections are either reiterated or newly applied. They constitute the complete set of actions being applied to the instant application.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claims 1-8 and 13-16 are rejected under 35 USC 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

The American Heritage Dictionary (Second College Edition, 1982) defines the term "prevent" as "anticipate or counter in advance, to keep from happening". The interpretation of the instant claims allows for the complete cure and eradication or total elimination effects by said

nitric oxide donor compound (i.e., ethyl nitrite, methyl nitrite, tert-butyl nitrite, isoamyl nitrite, etc...).

The present claim is drawn to a method of negating or reducing decrease in blood flow in an abdominal organ which would otherwise have decreased oxygen delivery because of decreased blood—flow therein because of being contacted with insufflating gas, comprising contacting said abdominal organ with a blood-flow to abdominal organ decrease preventing agent in a therapeutically effective amount.

The specification discloses the activity of ethyl nitrite in reducing decrease in blood flow induced by carbon dioxide induced peumoperitoneum, which meets the written description. However, claim 1 is directed to encompass preventive utility or said agent (e.g., ethyl nitrite, methyl nitrite, tert-butyl nitrite, etc...). None of these meet the written description provision of 35 USC 112, first paragraph. The specification provides insufficient written description to support the prophylactic utility (curing or total or complete eradication effects) encompassed by the claim.

Vas-Cath Inc. Mahurkar, 19 USPQ2d 1111, makes clear the "applicant must convey with reasonable clarity to those skilled in the art that, as of the filing date sought, he or she was in possession of the invention. The invention is, for purposes of the 'written description' inquiry, whatever is now claimed." (See page 1117.) The specification does not "clearly allow persons of ordinary skill in the art to recognize that [he or she] invented what is claimed." (See Vas-Cath at page 1116).

With the exception of "reducing activity of said nitric oxide donor agent", the skilled artisan cannot envision whether the administration of said agent would achieve curing or

eradication or total elimination effects. Adequate written description requires more than a mere statement that it is part of the invention and reference to a potential method for isolating it. See Fiers v. Revel, 25 USPQ2d 1601, 1606 (CAFC 1993) and Amgen Inc. V. Chugai pharmaceutical Co. Ltd., 18 USPQ2d 1016. In Fiddes v. Baird, 30 USPQ2d 1481, 1483, claims directed to mammalian FGF's were found unpatentable due to lack of written description for the broad class. The specification provided only the bovine sequence.

Finally, University of California v. Eli Lilly and Co., 43 USPQ2d 1398, 1404, 1405 held that:

...To fulfill the written description requirement, a patent specification must describe an invention and do so in sufficient detail that one skilled in the art can clearly conclude that "the inventor invented the claimed invention." *Lockwood v. American Airlines, Inc., 107 F.3d 1565, 1572, 41 USPQ2d 1961, 1966(1997); In re Gosteli, 872 F.2d 1008, 1012, 10 USPQ2d 1614, 1618 (Fed. Cir. 1989)* ("[T]he description must clearly allow persons of ordinary skill in the art to recognize that [the inventor] invented what is claimed.") Thus, an applicant complies with the written description requirement "by describing the invention, with all its claimed limitations, not that which makes it obvious," and by using "such descriptive means as words, structures, figures, diagrams, formulas, etc., that set forth the claimed invention." *Lockwood, 107 F.3d at 1572, 41 USPQ2d at 1966.*

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 1-8 and 13-16 rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 recites "abdominal organ which would otherwise have decreased oxygen delivery because of decreased blood-flow therein because of being contacted with insufflating gas". It is not clear what is meant by "abdominal organ which would otherwise have decreased oxygen delivery because of decreased blood-flow therein because of being contacted with insufflating gas".

It appears in view of the specification (page 1, lines 8-11) that the carbon dioxide pneumoperitoneum decreases blood-flow to abdominal organs in laproscopic surgery or diagnosis, and this can result in various complications including elevated liver functions, decreased renal perfusion, hypercapneic acidosis (due to failure to remove acid from tissue because of abnormal blood-flow, and in the case of the pregnant female, impairment of blood-flow to fetus and severe hypoxemia in fetus.

Claim 1 is vague and unclear and leaves the reader in doubt as to the meaning of the invention to which they refer, thereby rendering the definition of the subject-matter of said claims unclear. In this regard, although the specific examples s are shown in the specification (insufflating gas induced pneumoperitoneum), it is considered that the meaning of the claims should be clear from the wording of the claim alone.

This rejection could be obviated by amending "abdominal organ which would otherwise have decreased oxygen delivery because of decreased blood-flow therein because of being

contacted with insufflating gas" to "abdominal organ induced by insufflating gas pneumoperitoneum in laparoscopic surgery or diagnosis".

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

5. Claims 1-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Briend et al. (US 5670177) in view of Stamler et al. (US 6314956) and further in view of Unger (US 6461586) and Glines et al. (US 6716190).

Briend teaches the administration of gaseous mixtures of nitric oxide and carbon dioxide in treating or preventing ischemia by improving blood flow to heart and liver (Example 2A), wherein said composition is delivered in injection solution, for example intracardial or intraarterial injection, in dosage range of 1-100 ppm of nitric oxide.

Stamler is being supplied to demonstrate the use of ethyl nitrite as known nitric oxide donor in the art.

Unger and Glines are being supplied as supplemental references to demonstrate the art recognition in delivering various therapeutic agents to a target site.

The teaching of Briend differs from the claimed invention in the use of nitric oxide donor such as ethyl nitrite for the claimed utility and the delivery of said blood-flow to abdominal organ decrease preventing agent to the abdominal cavity, via inhalation (nebulized) or topical delivery

However, it would have been obvious to one of ordinary skill in the art to substitute other known nitric oxide donor such as ethyl nitrite for the nitric oxide of Briend. One having ordinary skill in the art would have known that the administration of ethyl nitrite would have similar activity by its nitric oxide releasing activity while reducing the potential adverse effects that are associated with inhaled NO. One would have been motivated to combine these references and make the modification because they are drawn to same technical fields (constituted with same ingredients and share common utilities), and pertinent to the problem which applicant concerns about. MPEP 2141.01(a).

With respect to the determination of the specific dosage range of ethyl nitrite, those of ordinary skill in the art would have been readily optimized effective dosages as determined by good medical practice and the clinical condition of the individual patient. Regardless of the manner of administration, the specific dose would have been calculated according to body weight, body surface area or organ size. Further refinement of the calculations necessary to determine the appropriate dosage for treatment involving each of the above mentioned

formulations is routinely made by those of ordinary skill in the art and is within the ability of tasks routinely performed by them without undue experimentation, especially in light of the dosage information provided in the prior art.

With respect to the specific delivery of said agent to the abdominal cavity or dosage formulation, such determination is considered within the skill of the artisan. It is recognized that pharmaceuticals generally may be delivered to the targeted organ via various delivery dosage forms (i.e., inhalation, intravenous, etc...), as well as disclosing benefits to be achieved by inhalation versus other modes of administration. Therefore, there exist general art accepted motivations for formulating drugs for the instant administration in absent evidence to contrary.

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970);and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

6. Claims 1-8 and 13-16 are provisionally rejected under the judicially created doctrine of double patenting over claims 1-11 of copending Application No.10/769912. This is a provisional double patenting rejection since the conflicting claims have not yet been patented.

The instant specification discloses that in laproscopic surgery or diagnosis, carbon dioxide which is usually used as insufflating gas can decrease blood-flow to abdominal, and this can result in elevated liver functions, decreased renal perfusion, hypercapneic acidosis, and in the case the pregnant female, impairment of blood-flow to fetus and sever hypoxemia in fetus (see Background of the Invention). The specification discloses that ethyl nitrate can diffuse into the blood to improve the flood flow.

The referenced delivering of the same agent such as ethyl nitrite in combination with carbon dioxide to the same treatment population (i.e., hypercapneic acidosis) in overlapping dosage amounts inherently possessing a therapeutic effect for the same ultimate purpose as disclosed by the instant application anticipates the claimed invention even absent explicit recitation of underlying mechanism. Thus, the copending application makes obvious the instant invention.

Although the copending application does not specifically mention "delivering a therapeutically effective amount of a blood-flow to abdominal organ decrease preventing agent to the abdominal cavity", such determination is considered within the skill of the artisan. It is recognized that pharmaceuticals generally may be delivered to the targeted organ via various delivery dosage forms (i.e., inhalation, intravenous, etc...), as well as disclosing benefits to be achieved by inhalation versus other modes of administration. Therefore, there exist general art accepted motivations for formulating drugs for the instant administration in absent evidence to contrary.

Conclusion

7. No Claim is allowed.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brian Kwon whose telephone number is (571) 272-0581. The examiner can normally be reached Tuesday through Friday from 9:00 am to 7:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ardin Marschel, can be reached on (571) 272-0718. The fax number for this Group is (571) 273-8300.

Any inquiry of a general nature of relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (571) 272-1600.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications may be obtained from Private PAIR only. For more information about PAIR system, see http://pair-direct.uspto.gov Should you have any questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll free).

Brian Kwon
Primary Patent Examiner
AU 1614